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WESTERNGECO L.L.C.
10001 RICHMOND AVENUE
(P.O. BOX 2469, HOUSTON, TX 77252-2469, U.S.A.)
HOUSTON, TX 77042

| EXAMINER | |
|---|---|
| HUGHES, SCOTT A | |
| ART UNIT | PAPER NUMBER |
| 3663 | |

DATE MAILED: 08/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/501,125 | ROBERTSSON, JOHAN O. A. | |
| | Examiner | Art Unit | |
| | Scott A. Hughes | 3663 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on 6/13/2006.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) 1-23 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-23 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 7/8/2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☒ Other: e-MAIL CORRESPONDENCE

## DETAILED ACTION

### *Response to Arguments*

Applicant's amendments to claims 9 and 18 are sufficient to overcome the objections to those claims.

Applicant's arguments filed 6/13/2006 with respect to the claim rejections have been fully considered but they are not persuasive.

Applicant argues that the Monk reference is not prior art and that the applicant reserves the right to swear behind the reference at a later date. The Monk reference was filed on June 21, 2000 and published as a patent on Nov. 6, 2001. Both of these dates are before the applicant priority date, and therefore the Monk reference is prior art as used in the 35 USC 103 rejections.

Applicant argues that Yan 2001 reference bears the date of 2001, but that there is no indication of what event occurred in 2001 (i.e. whether or not it was published in 2001). Applicant argues that the reference is therefore not prior art since it was not proven that the reference was printed and known by others in 2001, thereby disqualifying it as a reference under 35 USC 102 (a). This argument is not persuasive because the Yan reference was part of the published CREWES report of 2001; more specifically it is from the CREWES Research Report Volume 13 (2001). Further, attached to this report is a correspondence with the CREWES research center which states that the reference was both printed and distributed to others in 2001. Since applicant's priority date is in 2002, this reference is prior art under 35 USC 102 (a).

Applicant argues that the office has failed to establish that the Yan 2001 reference is a proper reference under 35 USC 102 (b). This argument is not persuasive and is not relevant because the Yan 2001 reference was cited under 35 USC 102 (a), and not 102 (b).

In section B. of the arguments, the applicant states "The Office Misconstrues Yan (2001)." In this section, applicant then refers only to Yan 2000, but is clear from the page numbers and cited paragraphs in the arguments that applicant intended to refer to Yan 2001 as stated in the section heading. For the purposes of the response to arguments, the arguments will be taken as though they refer to the 2001 Yan reference.

Applicant argues that all claim rejections "rely in whole or in part' on Yan (2000) (intended to be Yan 2001). This argument is incorrect, as there are claim rejections that rely only on Yan 2001 (Pages 2-6 of the prior Office Action) and also rejections that rely only on Yan 2000 (Pages 6-9 of the prior office action, 102 (b) rejections over Yan 2000). Applicant's footnote argument that the Office does not assert Yan (2000) against either claim 1 or claim 16 is not persuasive, and is incorrect as claims 1 and 16 were rejected under 35 USC 102 (b) over Yan (2000) on pages 6-9 of the prior Office Action. These rejections under 35 USC 102 (b) over Yan 2000 still stand.

Applicant argues that the Yan 2001 reference does not teach "using at least a down-going component of the parameter to identify the direct arrival at the receiver of acoustic energy emitted by a source." Applicant argues that the Yan 2001 reference only references down-going waves in the context of multiple attenuation. Applicant further argues that Yan only states that the direct arrival constitutes a part of the

downgoing wavefield, but does not teach actually identifying that part of the downgoing wavefield as the direct wave. These arguments are not persuasive because the broad language of the claim does not specify how the direct arrival needs to be identified. The claim limitation is broad enough that any type of identification of the direct arrival in the down-going component of a parameter of acquired acoustic data reads on the claim. Yan discloses processing the data to obtain the down-going components of the received wavefield parameters (even though these may be later attenuated). Yan further discloses that the direct arrival is part of the downgoing wavefield, and shows this in Fig. 23. Therefore, the Yan 2001 reference meets the broad limitation of using the down-going component of the parameter to identify the direct arrival.

Applicant further argues that Yan 2001 teaches an opposite approach from applicant's claims. Applicant argues that Yan uses the direct wave to make an estimate of a parameter, instead of using the parameter to identify the direct wave. This argument is not persuasive because claim 1 does not specify what parameter is used to determine the direct arrival, and therefore any parameter of the recorded wavefield can be used. Yan may disclose determining a parameter from the direct arrival, but this does not mean that the direct arrival can not be identified using a different parameter of the wavefield as stated above. Applicant does not specify the parameter or the specifics of the identification of the direct wave in the claim language of claim 1, and therefore the limitations are broad enough that the Yan reference meets the claim limitations as described above.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-6, 8-11, 15-18, and 22-23 are rejected under 35 U.S.C. 102(a) as being anticipated by Yan (CREWES 2001).

With regard to claim 1, Yan discloses a method of processing acoustic data acquired at a receiver (abstract). Yan discloses processing the acoustic data to obtain at least a down-going component of a parameter of the acquired acoustic data (Page 322, 341) (Fig. 23). Yan discloses using at least down-going component of the parameter to identify the direct arrival at the receiver of acoustic energy emitted by a source (322, 341) (Fig. 23). Yan discloses that the down-going wavefield contains the direct arrival, and shows its detection with the down-going components in Fig. 23. Therefore, Yan uses the down-going component of the pressure and particle velocity data to identify the direct arrival. The parameter from which the down-going component is taken is the pressure and particle velocity.

With regard to claim 2, Yan discloses identifying, in the down-going component of the parameter, the direct arrival of acoustic energy emitted by a source (322, 341) (Fig. 23).

With regard to claim 3, Yan discloses that the parameter of acoustic data is pressure (321, Introduction to 322; 341) (Fig. 23).

With regard to claim 4, Yan discloses determining the down-going component of the pressure from the pressure acquired at the receiver and from either the vertical component of the particle motion acquired at the receiver or the vertical component of the pressure gradient acquired at the receiver (321, Introduction to 322; 341) (Fig. 23). Yan discloses using pressure and vertical component of particle motion (velocity) to separate the wavefield into up-going and down-doing waves.

With regard to claim 5, Yan discloses that the parameter of acoustic data is the vertical component of particle motion acquired at the receiver (321, Introduction to 322; 327-329; 341) (Fig. 23). Yan discloses using pressure and vertical component of particle motion (velocity) to separate the wavefield into up-going and down-doing waves.

With regard to claim 6, Yan discloses determining the down-going component of the vertical component of particle motion from the pressure acquired at the receiver and from either the vertical component of the particle motion acquired at the receiver or the vertical component of the pressure gradient acquired at the receiver (321, Introduction to 322; 327-329; 341) (Fig. 23). Yan discloses using pressure and vertical component of particle motion (velocity) to separate the wavefield into up-going and down-doing waves.

With regard to claim 8, Yan discloses that the vertical component of particle motion is the vertical component of particle velocity (321, Introduction to 322; 327-329; 341).

With regard to claim 9, Yan discloses that the step of determining the down-going component of the pressure comprises determining $P^D$ as defined by the applicant (322, equations 1,2).

With regard to claim 10, Yan discloses processing at least the down-going component of the parameter of the acoustic data thereby to derive a further parameter of the acoustic data, and identifying in the further parameter, the direct arrival at the receiver of acoustic energy emitted at a source (321, Introduction to 322; 327-329; 341) (Fig. 23). Yan discloses identifying the direct arrival wavefield in the down-going wavefield (341).

With regard to claim 11, Yan discloses that the further parameter is the direct arrival wavefield (321, Introduction to 322; 327-329; 341) (Fig. 23).

With regard to claim 15, Yan discloses a method of seismic surveying (abstract). Yan discloses actuating a source of acoustic energy to emit acoustic energy, acquiring acoustic data at a receiver (Figs. 23-24), and processing the acoustic data according to a method defined in claim 1 (321, Introduction to 322; 327-329; 341).

With regard to claim 16, Yan discloses an apparatus for processing acoustic data acquired at a receiver (abstract). Yan discloses means for processing the acoustic data to obtain at least a down-going component of a parameter of the acoustic data (Page 322, 341) (Fig. 23). Yan discloses a means for identifying the direct arrival at the receiver of acoustic energy emitted by a source, using at least the down-going component of the parameter (321-322, 341) (Fig. 23). Yan discloses that the down-going wavefield contains the direct arrival, and shows its detection with the down-going

components in Fig. 23. Therefore, Yan uses the down-going component of the pressure and particle velocity data to identify the direct arrival. The parameter from which the down-going component is taken is the pressure and particle velocity.

With regard to claim 17, Yan discloses that the means for identifying the direct arrival are adapted to identify the direct arrival in the down-going component of the parameter (322, 341) (Fig. 23).

With regard to claim 18, Yan discloses means for processing at least the down-going component of the parameter of the acoustic data thereby to derive a further parameter of the acoustic data, and wherein the means for identifying the direct arrival are adapted to identify the direct arrival in the further parameter (321, Introduction to 322; 327-329; 341) (Fig. 23). Yan discloses identifying the direct arrival wavefield in the down-going wavefield (341).

With regard to claim 22, Yan discloses a seismic surveying apparatus comprising a source of acoustic energy, a receiver spatially separated from the source, and an apparatus as defined in claim 16 (321-322; 327-329; 341) (Figs. 23-24).

With regard to claim 23, Yan discloses a ranging apparatus comprising a source of acoustic energy, a receiver located proximate to the source (Figs. 23-24), and an apparatus as defined in claim 16 (321-322; 327-329; 341) (Fig. 23).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

**A person shall be entitled to a patent unless –**

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 8, 10-11, 15-18, and 22-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Yan (CREWES 2000).

With regard to claim 1, Yan discloses a method of processing acoustic data acquired at a receiver (abstract). Yan discloses processing the acoustic data to obtain at least a down-going component of a parameter of the acquired acoustic data. Yan discloses using at least down-going component of the parameter to identify the direct arrival at the receiver of acoustic energy emitted by a source (Page 1, 4-6; Page 7, Numerical Examples to Page 9) (Figs. 1-5). Yan discloses that the down-going wavefield contains the direct arrival, and states the time of its detection compared to the other down-going reverberations. Therefore, Yan uses the down-going component of the pressure and particle velocity data to identify the direct arrival. The parameter from which the down-going component is taken is the pressure and particle velocity.

With regard to claim 2, Yan discloses identifying, in the down-going component of the parameter, the direct arrival of acoustic energy emitted by a source (Page 1, 4-6; Page 7, Numerical Examples to Page 9) (Figs. 1-5). Yan discloses that the down-going wavefield contains the direct arrival, and states the time of its detection compared to the other down-going reverberations. Therefore, Yan uses the down-going component of the pressure and particle velocity data to identify the direct arrival. The parameter from which the down-going component is taken is the pressure and particle velocity.

With regard to claim 3, Yan discloses that the parameter of acoustic data is pressure (Page 1, 4-6; Page 7, Numerical Examples to Page 9) (Figs. 1-5). Yan uses

the down-going component of the pressure and particle velocity data to identify the direct arrival. The parameter from which the down-going component is taken is the pressure and particle velocity.

With regard to claim 4, Yan discloses determining the down-going component of the pressure from the pressure acquired at the receiver and from either the vertical component of the particle motion acquired at the receiver or the vertical component of the pressure gradient acquired at the receiver (Page 1, 4-6) (Figs. 1-5).

With regard to claim 5, Yan discloses that the parameter of acoustic data is the vertical component of particle motion acquired at the receiver (Page 1, 4-6) (Figs. 1-5).

With regard to claim 6, Yan discloses determining the down-going component of the vertical component of particle motion from the pressure acquired at the receiver and from either the vertical component of the particle motion acquired at the receiver or the vertical component of the pressure gradient acquired at the receiver (Page 1, 4-6) (Figs. 1-5).

With regard to claim 8, Yan discloses that the vertical component of particle motion is the vertical component of particle velocity (Page 1, 4-6) (Figs. 1-5).

With regard to claim 10, Yan discloses processing at least the down-going component of the parameter of the acoustic data thereby to derive a further parameter of the acoustic data, and identifying in the further parameter, the direct arrival at the receiver of acoustic energy emitted at a source (Page 1, 4-6) (Figs. 1-5). Yan discloses finding the down-going wavefield, which contains the direct arrival wavefield.

With regard to claim 11, Yan discloses that the further parameter is the direct arrival wavefield (Page 1, 4-6) (Figs. 1-5).

With regard to claim 15, Yan discloses a method of seismic surveying. Yan discloses actuating a source of acoustic energy to emit acoustic energy, acquiring acoustic data at a receiver, and processing the acoustic data according to a method defined in claim 1.

With regard to claim 16, Yan discloses an apparatus for processing acoustic data acquired at a receiver. Yan discloses means for processing the acoustic data to obtain at least a down-going component of a parameter of the acoustic data. Yan discloses a means for identifying the direct arrival at the receiver of acoustic energy emitted by a source, using at least the down-going component of the parameter (Page 1, 4-6; Page 7, Numerical Examples to Page 9) (Figs. 1-5). Yan discloses that the down-going wavefield contains the direct arrival, and states the time of its detection compared to the other down-going reverberations. Therefore, Yan uses the down-going component of the pressure and particle velocity data to identify the direct arrival. The parameter from which the down-going component is taken is the pressure and particle velocity.

With regard to claim 17, Yan discloses that the means for identifying the direct arrival are adapted to identify the direct arrival in the down-going component of the parameter (Page 1, 4-6; Page 7, Numerical Examples to Page 9) (Figs. 1-5).

With regard to claim 18, Yan discloses means for processing at least the down-going component of the parameter of the acoustic data thereby to derive a further parameter of the acoustic data, and wherein the means for identifying the direct arrival

are adapted to identify the direct arrival in the further parameter (Page 1, 4-6) (Figs. 1-5). Yan discloses finding the down-going wavefield, which contains the direct arrival wavefield.

With regard to claim 22, Yan discloses a seismic surveying apparatus comprising a source of acoustic energy, a receiver spatially separated from the source, and an apparatus as defined in claim 16 (Page 1, 4-6; Page 7, Numerical Examples to Page 9) (Figs. 1-5).

With regard to claim 23, Yan discloses a ranging apparatus comprising a source of acoustic energy, a receiver located proximate to the source, and an apparatus as defined in claim 16 (Page 1, 4-6; Page 7, Numerical Examples to Page 9) (Figs. 1-5).

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yan (CREWES 2001).

With regard to claim 7, Yan discloses that the vertical component of particle motion is the vertical component of particle velocity, not particle acceleration. It is known that velocity is the time derivative of acceleration, and that both are measures of the particle motion. It would have been obvious to modify Yan to include using particle

acceleration sensors (accelerometers) instead of particle velocity sensors as both are known and used in the art.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yan (CREWES 2000).

With regard to claim 7, Yan discloses that the vertical component of particle motion is the vertical component of particle velocity, not particle acceleration. It is known that velocity is the time derivative of acceleration, and that both are measures of the particle motion. It would have been obvious to modify Yan to include using particle acceleration sensors (accelerometers) instead of particle velocity sensors as both are known and used in the art.

Claims 12-14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yan (CREWES 2001 or CREWES 2000) as applied to claims 1 and 16 above, and further in view of Monk.

With regard to claim 12, neither Yan reference discloses determining the path length of acoustic energy from the source to the receiver from the direct arrival of acoustic energy at the receiver. Monk teaches a method of analyzing seismic data involving separating up-going and down-going wavefields (Columns 1-2). Monk teaches that the travel times of the detected waves from the source to the receivers can be used to determine distances (Column 1, Lines 50-65). It would have been obvious to modify Yan (CREWES 2000 or 2001) to include using the travel times of the direct

arrival waves to determine distances (path length of the wave) to the receivers in order to be able to determine the geometry of the subsurface structures from the pathlengths of the waves and the locations of the receivers from the source (pathlength of direct wave to travel from source to receiver).

With regard to claim 13, neither Yan reference discloses that the source is spatially separated from the receiver, and that the path length of seismic energy from the source to the receiver is indicative of the separation between the source and the receiver. Monk teaches that the travel times of the detected waves from the source to the receivers can be used to determine distances (Column 1, Lines 50-65). It would have been obvious to modify Yan (CREWES 200o or 2001) to include using the travel times of the direct arrival waves to determine distances (path length of the wave) to the receivers in order to be able to determine the geometry of the subsurface structures from the pathlengths of the waves and the locations of the receivers from the source (pathlength of direct wave to travel from source to receiver).

With regard to claim 14, neither Yan reference discloses that the source is proximate to the receiver, and that the path length of seismic energy from the source to the receiver is indicative of the range from the source and receiver to a reflector of acoustic energy. Monk teaches that the travel times of the detected waves from the source to the receivers can be used to determine distances to reflectors in the subsurface (Column 1, Lines 50-65). It would have been obvious to modify Yan (CREWES 200o or 2001) to include using the travel times of the direct arrival waves to determine distances (path length of the wave) to the receivers in order to be able to

determine the geometry of the subsurface structures from the pathlengths of the waves and the locations of the receivers from the source (pathlength of direct wave to travel from source to receiver).

With regard to claim 19, neither Yan reference discloses means for determining the path length of acoustic energy from the source to the receiver from the direct arrival of acoustic energy at the receiver. Monk teaches that the travel times of the detected waves from the source to the receivers can be used to determine distances (Column 1, Lines 50-65). It would have been obvious to modify Yan (CREWES 200o or 2001) to include using the travel times of the direct arrival waves to determine distances (path length of the wave) to the receivers in order to be able to determine the geometry of the subsurface structures from the pathlengths of the waves and the locations of the receivers from the source (pathlength of direct wave to travel from source to receiver).

Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yan (CREWES 2001 or CREWES 2000) as applied to claim 16 above, and further in view of Corrigan.

With regard to claim 20, neither Yan reference discloses a programmable data processor. From the references and the figures of the data obtained in the references, it is obvious that a computer was used. Yan does not specifically disclose a computer with a programmable data processor. Corrigan discloses a computer system including a programmable data processor for taking seismic data measurements and processing the data using ocean bottom hydrophones and geophones (Fig. 4) (abstract; Columns

5-6). It would have been obvious to modify Yan (CREWES 2000 or 2001) to include a computer with a programmable processor to process the data obtained by the hydrophones and geophones as taught by Corrigan in order to have a device to quickly and efficiently process the data and control the system.

With regard to claim 21, neither Yan reference discloses a storage medium containing a program for the data processor of claim 20. Corrigan discloses a computer system including a programmable data processor and a storage medium containing a program (hard disk, floppy disk, magnetic tape) for taking seismic data measurements and processing the data using ocean bottom hydrophones and geophones (Fig. 4) (abstract; Columns 5-6). It would have been obvious to modify Yan (CREWES 2000 or 2001) to include a computer with a programmable processor and storage medium containing a program to process the data obtained by the hydrophones and geophones as taught by Corrigan in order to have a device to quickly and efficiently process the data and control the system.

### *Conclusion*

The cited prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A. Hughes whose telephone number is 571-272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAH

JACK KEITH
SUPERVISORY PATENT EXAMINER